



# California Institute of Technology

## High Energy Physics

### Postdoctoral Scholar Position

The Caltech experimental high energy physics group is seeking highly qualified candidates for a postdoctoral research position in neutrino physics. Our group is centrally involved in the NOvA and MINOS long-baseline experiments, and we are engaged in the development of a new technique for kinematic neutrino mass measurements.

NOvA's unique detector design, off-axis location, and 810 km baseline permit a broad program of neutrino oscillation physics, including a sensitive search for muon-neutrino to electron-neutrino oscillations. The primary goals of NOvA are to measure the neutrino mixing angle  $\theta_{13}$ , to determine the neutrino mass ordering, and to look for leptonic CP violation. NOvA will also make precision measurements of the dominant oscillation parameters using both neutrinos and antineutrinos, in search of non-maximal mixing and physics beyond the standard model. Our group has central roles in NOvA physics analysis as well as in data acquisition and electronics; detector commissioning and calibration; and event simulation and reconstruction. The NOvA near detector prototype is now operating at Fermilab, and the far detector is expected to turn on in 2012.

The MINOS experiment continues to produce leading neutrino oscillation results in the atmospheric sector, and the data we collect in the upcoming medium-energy NuMI run will allow for numerous novel searches for physics beyond the standard model, including non-standard interactions and sterile states.

Our group is also involved in the Project 8 experiment, which aims to develop a new radiofrequency electron detection technique for improved direct neutrino mass measurements using tritium beta decay. This effort includes a broad range of analysis and detector R&D toward defining the performance and scalability of the design.

It is expected that the successful candidate would play an important role in one or more of the above efforts. Candidates should have a Ph.D. in high energy physics and should demonstrate strong potential for outstanding achievement as an independent researcher. Experience with detector hardware and with object-oriented software and analysis design will be advantageous.

Interested applicants should send a cover letter, curriculum vitae, list of publications, and description of research interests and skills to Professor Ryan Patterson (email: [rbpatter@caltech.edu](mailto:rbpatter@caltech.edu)), High Energy Physics, MC 356-48 Caltech, Pasadena, CA 91125. Applicants should also arrange for three letters of reference to be sent. Electronic submission of materials is preferred. The position is available immediately, and review of applications will continue until the position is filled.

*Caltech is an equal opportunity/affirmative action employer. Women, minorities, veterans and disabled persons are encouraged to apply.*